

## **SEQUENCE LISTING**

<110> Oosumi et al., Teruko  
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cgt ctc cca gac tgg atg aat cac tca gtt ttg aaa aat gtt gtc tct Arg Leu Pro Asp Trp Met Asn His Ser Val Leu Lys Asn Val Val Ser 725 730 735	2679
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Ser Asn Leu Met Ala Leu Thr Ser Leu Gln Ile Arg Tyr Asn Lys Glu			
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Asp Ala Ser Leu Pro Glu Glu Met Phe Lys Ser Leu Ala Asn Leu Lys			
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Tyr Leu Asn Ile Ser Phe Tyr Phe Asn Leu Lys Glu Leu Pro Thr Ser			
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Lys Ile Ala His Ile Pro Arg Val Phe Ile Tyr			
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Lys Leu Gln Ser Thr Phe Thr Thr Ile Gln Ala Val Leu Glu Asp Ala			
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Pro Asn Val Ile Thr Phe Arg His Lys Ile Gly Lys Arg Met Lys Lys  
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Phe Val Leu Asn Glu Pro Gln Val Tyr Gly Arg Asp Lys Glu Lys Asp  
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Glu Ile Val Lys Ile Leu Ile Asn Asn Val Ser Asn Ala Gln Thr Leu  
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Pro Val Leu Pro Ile Leu Gly Met Gly Leu Gly Lys Thr Thr Leu  
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Lys Glu Ile Val Glu Ser Ile Glu Glu Lys Ser Leu Gly Gly Met Asp  
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Tyr Leu Leu Val Leu Asp Asp Val Trp Asn Glu Asp Gln Asp Lys Trp  
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Ala Lys Leu Arg Gln Val Leu Lys Val Gly Ala Ser Gly Ala Ser Val  
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Leu Thr Thr Thr Arg Leu Glu Lys Val Gly Ser Ile Met Gly Thr Leu

290

295

300

Gln Pro Tyr Glu Leu Ser Asn Leu Ser Gln Glu Asp Cys Trp Leu Leu  
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Phe Met Gln Arg Ala Phe Gly His Gln Glu Glu Ile Asn Leu Asn Leu  
325                   330                   335

Val Ala Ile Gly Lys Glu Ile Val Lys Lys Cys Gly Gly Val Pro Leu  
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Ala Ala Lys Thr Leu Gly Gly Ile Leu Arg Phe Lys Arg Glu Glu Arg  
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Gln Trp Glu His Val Arg Asp Ser Glu Ile Trp Lys Leu Pro Gln Glu  
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Glu Ser Ser Ile Leu Pro Ala Leu Arg Leu Ser Tyr His His Leu Pro  
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Leu Asp Leu Arg Gln Cys Phe Thr Tyr Cys Ala Val Phe Pro Lys Asp  
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Thr Glu Met Glu Lys Gly Asn Leu Ile Ser Leu Trp Met Ala His Gly  
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Phe Ile Leu Ser Lys Gly Asn Leu Glu Leu Glu Asn Val Gly Asn Glu  
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Val Trp Asn Glu Leu Tyr Leu Arg Ser Phe Phe Gln Glu Ile Glu Val  
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Lys Ser Gly Gln Thr Tyr Phe Lys Met His Asp Leu Ile His Asp Leu  
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Ala Thr Ser Leu Phe Ser Ala Ser Thr Ser Ser Ser Asn Ile Arg Glu  
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Ile Ile Val Glu Asn Tyr Ile His Met Met Ser Ile Gly Phe Thr Lys  
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Arg Val Leu Asn Leu Ser Asp Ile Lys Leu Lys Gln Leu Pro Ser Ser  
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Ser Ile Arg Ser Leu Pro Asn Gln Leu Cys Lys Leu Gln Asn Leu Gln  
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Thr Leu Asp Leu His Gly Cys His Ser Leu Cys Cys Leu Pro Lys Glu  
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Gly Leu Thr Cys Met Pro Pro Arg Ile Gly Ser Leu Thr Cys Leu Lys  
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Gly Glu Leu Arg Asn Leu Asn Leu Tyr Gly Ser Ile Glu Ile Thr His  
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Leu Glu Arg Val Lys Asn Asp Met Asp Ala Lys Glu Ala Asn Leu Ser  
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Ala Lys Glu Asn Leu His Ser Leu Ser Met Lys Trp Asp Asp Asp Glu  
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Arg Pro Arg Ile Tyr Glu Ser Glu Lys Val Glu Val Leu Glu Ala Leu  
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Lys Pro His Ser Asn Leu Thr Cys Leu Thr Ile Arg Gly Phe Arg Gly  
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Ile Arg Leu Pro Asp Trp Met Asn His Ser Val Leu Lys Asn Val Val  
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Ser Ile Glu Ile Ile Ser Cys Lys Asn Cys Ser Cys Leu Pro Pro Phe  
740 745 750

Gly Glu Leu Pro Cys Leu Lys Ser Leu Glu Leu Trp Arg Gly Ser Ala  
755 760 765

Glu Val Glu Tyr Val Asp Ser Gly Phe Pro Thr Arg Arg Arg Phe Pro  
770 775 780

Ser Leu Arg Lys Leu Asn Ile Arg Glu Phe Asp Asn Leu Lys Gly Leu  
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Leu Lys Lys Glu Gly Glu Glu Gln Cys Pro Val Leu Glu Glu Ile Glu  
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Ile Lys Cys Cys Pro Met Phe Val Ile Pro Thr Leu Ser Ser Val Lys  
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Lys Leu Val Val Ser Gly Asp Lys Ser Asp Ala Ile Gly Phe Ser Ser  
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Ile Ser Asn Leu Met Ala Leu Thr Ser Leu Gln Ile Arg Tyr Asn Lys  
850                    855                    860

Glu Asp Ala Ser Leu Pro Glu Glu Met Phe Lys Ser Leu Ala Asn Leu  
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Lys Tyr Leu Asn Ile Ser Phe Tyr Phe Asn Leu Lys Glu Leu Pro Thr  
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Ser Leu Ala Ser Leu Asn Ala Leu Lys His Leu Glu Ile His Ser Cys  
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Tyr Ala Leu Glu Ser Leu Pro Glu Glu Gly Val Lys Gly Leu Ile Ser  
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Leu Thr Gln Leu Ser Ile Thr Tyr Cys Glu Met Leu Gln Cys Leu Pro  
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Glu Gly Leu Gln His Leu Thr Ala Leu Thr Asn Leu Ser Val Glu Phe  
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Cys Pro Thr Leu Ala Lys Arg Cys Glu Lys Gly Ile Gly Glu Asp Trp  
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ccg gcc ctg aaa ctt agt tac cat cat ctt cca ctt gat ttg aga caa Pro Ala Leu Lys Leu Ser Tyr His His Leu Pro Leu Asp Leu Arg Gln 410                   415                   420	1598
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Ala Lys Leu Arg Glu Val Leu Lys Val Gly Ala Ser Gly Ala Ser Ile  
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Leu Thr Thr Thr Arg Leu Glu Lys Val Gly Ser Ile Met Gln Thr Leu  
305 310 315 320

Gln Pro Tyr Glu Leu Ser Asn Leu Cys Gln Glu Asp Cys Trp Leu Leu  
325 330 335

Phe Met Gln Arg Ala Phe Gly His Gln Glu Glu Ile Asn His Asn Leu  
340 345 350

Val Ala Ile Gly Lys Glu Ile Val Lys Lys Cys Gly Gly Val Pro Leu  
355 360 365

Ala Ala Lys Thr Leu Gly Gly Ile Leu Arg Phe Lys Arg Gln Glu Arg  
370 375 380

Gln Trp Glu His Val Arg Asp Ser Glu Ile Trp Lys Leu Pro Gln Glu  
385 390 395 400

Glu Ser Ser Ile Leu Pro Ala Leu Lys Leu Ser Tyr His His Leu Pro  
405 410 415

Leu Asp Leu Arg Gln Cys Phe Ser Tyr Cys Ala Val Phe Pro Lys Asp  
420 425 430

Thr Lys Met Glu Lys Glu Asn Leu Ile Ser Leu Trp Met Ala His Gly  
435 440 445

Phe Leu Leu Ser Lys Gly Asn Leu Glu Leu Glu Asp Val Gly Asn Glu  
450 455 460

Val Trp Asn Glu Leu Tyr Leu Arg Ser Phe Phe Gln Glu Ile Glu Val  
465 470 475 480

Thr Tyr Gly Lys Thr Tyr Phe Lys Met His Asp Leu Ile His Asp Leu  
485 490 495

Ala Thr Ser Leu Phe Ser Ala Ser Ser Asn Asn Ile Arg Glu  
500 505 510

Ile Asn Val Lys Gly Tyr Pro His Met Met Ser Ile Gly Phe Ala Lys  
515 520 525

Val Val Ser Phe Tyr Ser Arg Ser His Phe Gln Lys Phe Val Ser Leu  
530 535 540

Arg Val Leu Asn Leu Ser Asn Leu Glu Leu Lys Gln Leu Pro Ser Ser  
545 550 555 560

Ile Gly Asp Leu Val His Leu Arg Tyr Leu Asn Leu Ser Asp Asn Asn  
565 570 575

Arg Ile Arg Ser Leu Pro Lys Gln Leu Cys Lys Leu Gln Asn Leu Gln  
580 585 590

Thr Leu Asp Leu Arg Cys Cys Tyr Arg Leu Ser Cys Leu Pro Lys Glu  
595 600 605

Thr Ser Lys Leu Gly Ser Leu Arg Asn Leu Leu Asp Arg Cys His  
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Gly Leu Thr Cys Met Pro Pro Arg Ile Gly Ser Leu Thr Cys Leu Lys  
625 630 635 640

Thr Leu Asp Arg Phe Ala Met Gly Arg Glu Lys Ser Pro Gln Ile Gly  
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Glu Leu Arg Asn Leu Asn Leu Tyr Gly Ser Ile Ser Ile Thr His Leu  
660 665 670

Glu Arg Val Lys Asn Asp Met Asp Ala Lys Glu Ala Asn Leu Ser Ser  
675 680 685

Lys Glu Asn Leu His Ser Leu Ser Met Ile Trp Asp Glu Asp Glu Arg  
690 695 700

Pro His Arg Tyr Glu Ser Glu Asp Val Glu Val Leu Glu Ala Leu Lys  
705 710 715 720

Pro His Ser Asn Leu Thr Cys Leu Thr Ile Ile Gly Phe Arg Gly Ile  
725 730 735

Arg Leu Pro Asp Trp Met Asn His Ser Val Leu Lys Asn Val Val Ser  
740 745 750

Leu Glu Ile Ser Asp Cys Lys Asn Cys Ser Cys Leu Pro Pro Phe Gly  
755 760 765

Glu Leu Pro Cys Leu Asn Ser Leu Gln Leu Trp Ser Gly Ser Ala Glu  
770 775 780

Val Glu Tyr Ile Asp Ser Gly Phe Pro Thr Arg Arg Arg Phe Pro Ser  
785 790 795 800

Leu Arg Lys Leu Ile Ile Gly Glu Phe Asp Asn Leu Lys Gly Leu Val

805

810

815

Lys Lys Glu Gly Glu Glu Gln Phe Pro Val Leu Glu Glu Met Glu Ile  
820 825 830

Asn Trp Cys Pro Met Phe Val Ile Pro Thr Leu Ser Ser Val Asn Lys  
835 840 845

Leu Val Val Ser Gly Glu Glu Ser Asp Ala Ile Gly Phe Ser Ser Ile  
850 855 860

Ser Asn Leu Arg Ala Leu Thr Ser Leu Asn Ile Ser Tyr Asn Ser Glu  
865 870 875 880

Ala Thr Ser Leu Pro Glu Glu Met Phe Lys Ser Leu Ala Asn Leu Lys  
885 890 895

Tyr Leu Asn Ile Tyr Tyr Phe Lys Asn Leu Lys Glu Leu Pro Thr Asn  
900 905 910

Leu Ala Ser Leu Asn Ala Leu Lys Asn Leu Glu Ile Glu Ser Cys Tyr  
915 920 925

Ala Leu Glu Ser Leu Pro Glu Glu Gly Val Lys Gly Leu Thr Ser Leu  
930 935 940

Thr Gln Leu Ser Ile Thr Tyr Cys Thr Met Leu Gln Cys Leu Ser Glu  
945 950 955 960

Gly Leu Gln His Leu Thr Ala Leu Thr Asn Leu Ser Val Arg Asp Cys  
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Pro Thr Leu Ala Lys Arg Cys Glu Lys Gly Ile Gly Glu Asp Trp Tyr  
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Met Ala Glu Ala Phe Leu Gln Val Leu Leu Gly Asn Ile Thr Ser Phe	
1 5 10 15	

atc caa ggg gaa ctt gta ttg ctt ttc ggt ttt gaa aac gac ttc aga	153
Ile Gln Gly Glu Leu Val Leu Leu Phe Gly Phe Glu Asn Asp Phe Arg	
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aag ctt tca agc aca ttt tct acg atc caa ctt gtg ctt gaa gat gct	201
Lys Leu Ser Ser Thr Phe Ser Thr Ile Gln Leu Val Leu Glu Asp Ala	
35 40 45	

tca gag aag caa ctg aag gac aag gca ata gag aat tgg ttg cag aaa	249
Ser Glu Lys Gln Leu Lys Asp Lys Ala Ile Glu Asn Trp Leu Gln Lys	
50 55 60	

ctc aat ttt gct gca tat gaa gtc gat gac atc ttg gat gaa tgt aaa	297
Leu Asn Phe Ala Ala Tyr Glu Val Asp Asp Ile Leu Asp Glu Cys Lys	
65 70 75 80	

aat gag gca gca aga ttc aat cag tcc tta tta ggg tat att cat cca	345
Asn Glu Ala Ala Arg Phe Asn Gln Ser Leu Leu Gly Tyr Ile His Pro	
85 90 95	

aag atc atc att ttt cgt tac aag ctc gga aaa aga atg aaa aga atg	393
Lys Ile Ile Ile Phe Arg Tyr Lys Leu Gly Lys Arg Met Lys Arg Met	
100 105 110	

atg gag aaa cta gat gca att gct gac gaa aga agg aag ttt cat ttg	441
Met Glu Lys Leu Asp Ala Ile Ala Asp Glu Arg Arg Lys Phe His Leu	
115 120 125	

cgt gca aag att gtc gag aaa caa gct tct aaa cgt gaa aca ggt gct	489
Arg Ala Lys Ile Val Glu Lys Gln Ala Ser Lys Arg Glu Thr Gly Ala	
130 135 140	

cat ctt aaa ctg tgt tta gcc aag tac tta cta ata gct tagtttata	538
His Leu Lys Leu Cys Leu Ala Lys Tyr Leu Leu Ile Ala	
145 150 155	

ttcacatcccc tttagttacc agattctata catgtttgtt ccatgtcagc ctttccttgt	598
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gtcttttgtt ttgcaaaaaa tcttcttata ttccctgtga ctcccttttag tgagcttgaa	658
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tttaataaaaa ttgtgtttcg cattgttgcgtt ga aca ggt ttt gtt tta gca gag	711
Thr Gly Phe Val Leu Ala Glu	
160	

cca aaa gtt tat gga agg gac aaa gag aag gat gag atg gtg aaa atc	759
Pro Lys Val Tyr Gly Arg Asp Lys Glu Lys Asp Glu Met Val Lys Ile	

165	170	175	180	
ttg ata aac agt gtt	agt aat gcc caa gaa cta tta gtg ctc cca ata			807
Leu Ile Asn Ser Val	Ser Asn Ala Gln Glu Leu Leu Val Leu Pro Ile			
185	190		195	
ctt ggt atg ggg gga	cta gga aag aca aca ctt gcc caa atg att ttt			855
Leu Gly Met Gly Gly	Leu Gly Lys Thr Thr Leu Ala Gln Met Ile Phe			
200	205		210	
aat gat cag agc gtg	act gca cat ttc aat cta aag ata tgg gtt tgt			903
Asn Asp Gln Ser Val	Thr Ala His Phe Asn Leu Lys Ile Trp Val Cys			
215	220		225	
gtc tca gat gat ttt	gat gag aag agg ttg ata aag gca att gta gaa			951
Val Ser Asp Asp Phe Asp	Glu Lys Arg Leu Ile Lys Ala Ile Val Glu			
230	235		240	
tct att gaa aga agg	cca ctt ggt gac ata gac ttg gct ccc ctc cag			999
Ser Ile Glu Arg Arg	Pro Leu Gly Asp Ile Asp Leu Ala Pro Leu Gln			
245	250		255	260
aag aag ctt cag gag	ttg ttg aat gga aaa aga tac ttt ctt gtt tta			1047
Lys Lys Leu Gln Glu	Leu Leu Asn Gly Lys Arg Tyr Phe Leu Val Leu			
265	270		275	
gat gat gtt tgg aat	gaa gat caa gaa aag tgg gct aag ata aaa gca			1095
Asp Asp Val Trp Asn	Glu Asp Gln Glu Lys Trp Ala Lys Ile Lys Ala			
280	285		290	
gtc tta aag gtt gga	gca caa ggt tct tct att cta gcc act act cgt			1143
Val Leu Lys Val Gly	Ala Gln Gly Ser Ser Ile Leu Ala Thr Thr Arg			
295	300		305	
ctt gaa agg gtc gga	tca att atg gga act tgg caa cca tat cag tta			1191
Leu Glu Arg Val Gly	Ser Ile Met Gly Thr Trp Gln Pro Tyr Gln Leu			
310	315		320	
tca att ttg tct cca	gaa tat tgt tgg ttg ttc aag caa cgt gca			1239
Ser Ile Leu Ser Pro	Glu Tyr Cys Trp Leu Leu Phe Lys Gln Arg Ala			
325	330		335	340
ttt ggc cac caa acg	gaa aca aat cct gcc ctt gtg ggg att gga aaa			1287
Phe Gly His Gln Thr	Glu Thr Asn Pro Ala Leu Val Gly Ile Gly Lys			
345	350		355	
gag att gtg aag aaa	tgt ggg ggt gtg cct cta gca gcc aag act ctt			1335
Glu Ile Val Lys Lys	Cys Gly Val Pro Leu Ala Ala Lys Thr Leu			
360	365		370	
gga ggt ctt tta cgc	ttc aag aga gaa gaa agt gaa tgg gaa cat gtg			1383
Gly Gly Leu Leu Arg	Phe Lys Arg Glu Glu Ser Glu Trp Glu His Val			
375	380		385	
aaa gat agt gag att	tgg aat tta cct caa gat gaa aat tct gtt ttg			1431
Lys Asp Ser Glu Ile	Trp Asn Leu Pro Gln Asp Glu Asn Ser Val Leu			
390	395		400	
cct tcc ctg agg ctg	agt tat cat cac ctt cca ctt aat ttg aga caa			1479
Pro Ser Leu Arg Leu	Ser Tyr His His Leu Pro Leu Asn Leu Arg Gln			
405	410		415	420

tgt ttt gca tat tgt gcg gta ttc cca aag gac acc aaa ata gaa aag Cys Phe Ala Tyr Cys Ala Val Phe Pro Lys Asp Thr Lys Ile Glu Lys 425 430 435	1527
gaa tat ctc atc act ctc tgg atg gca cat ggt ttt ctt tta tca aaa Glu Tyr Leu Ile Thr Leu Trp Met Ala His Gly Phe Leu Leu Ser Lys 440 445 450	1575
gaa aat tca gag cta gag gat gtg ggt aat gaa gta tgg aaa gaa tta Glu Asn Ser Glu Leu Glu Asp Val Gly Asn Glu Val Trp Lys Glu Leu 455 460 465	1623
tac ttg agg tct ttc caa gag gtc gaa gaa tat aaa ttt ggt aat Tyr Leu Arg Ser Phe Phe Gln Glu Val Glu Glu Tyr Lys Phe Gly Asn 470 475 480	1671
act tat ttc aag atg cat gat ctc atc cac gat ttg gct aca tct ctg Thr Tyr Phe Lys Met His Asp Leu Ile His Asp Leu Ala Thr Ser Leu 485 490 495 500	1719
ttc tca aca aac aca agg agc agc aaa att cgt caa ata aga gta gca Phe Ser Thr Asn Thr Arg Ser Ser Lys Ile Arg Gln Ile Arg Val Ala 505 510 515	1767
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tct cct tta atc ttt aaa agg ttt gtc tcg cta agg gtt ctt gat atg Ser Pro Leu Ile Phe Lys Arg Phe Val Ser Leu Arg Val Leu Asp Met 535 540 545	1863
aaa ttt tca aag ttt gat cag tta tca tct tcc atc gga gat cta ata Lys Phe Ser Lys Phe Asp Gln Leu Ser Ser Ser Ile Gly Asp Leu Ile 550 555 560	1911
cat tta agg ttg ttg aac ttg cgt ggc agt agc att cgt agc ctt cca His Leu Arg Leu Leu Asn Leu Arg Gly Ser Ser Ile Arg Ser Leu Pro 565 570 575 580	1959
aag agg tta tgc aag cttcaa aat ctg cag aca ctt gat ata tca tgt Lys Arg Leu Cys Lys Leu Gln Asn Leu Gln Thr Leu Asp Ile Ser Cys 585 590 595	2007
tgt ttc tca ctt tct tat att cca aaa caa ata agt aaa tta agt agt Cys Phe Ser Leu Ser Tyr Ile Pro Lys Gln Ile Ser Lys Leu Ser Ser 600 605 610	2055
ctt aga aat ctt gtg ttc agt ggt tgt caa ata act tct atg cca cca Leu Arg Asn Leu Val Phe Ser Gly Cys Gln Ile Thr Ser Met Pro Pro 615 620 625	2103
aga ata gga tca ttg aca tgc ctt aag act cta gat tac ttt att gtc Arg Ile Gly Ser Leu Thr Cys Leu Lys Thr Leu Asp Tyr Phe Ile Val 630 635 640	2151
ggc gag agg aaa ggt tat caa ctt ggt gaa cta cggt aat cta agc cta Gly Glu Arg Lys Gly Tyr Gln Leu Gly Glu Leu Arg Asn Leu Ser Leu 645 650 655 660	2199

cat ggt tca ctt tca atc tca cat ctt gag aga gtg aag agt gaa acg His Gly Ser Leu Ser Ile Ser His Leu Glu Arg Val Lys Ser Glu Thr 665 670 675	2247
gat gca aaa gaa gct aat tta tct acc aaa caa aaa ttg tac aat tta Asp Ala Lys Glu Ala Asn Leu Ser Thr Lys Gln Lys Leu Tyr Asn Leu 680 685 690	2295
tgc atg agt tgg gat att agg cca tat gga tat gaa tca gaa aac aat Cys Met Ser Trp Asp Ile Arg Pro Tyr Gly Tyr Glu Ser Glu Asn Asn 695 700 705	2343
ttg gat gaa aaa gtg ctt gaa gcc ctc aga cca cac tcc aac ctg aaa Leu Asp Glu Lys Val Leu Glu Ala Leu Arg Pro His Ser Asn Leu Lys 710 715 720	2391
tca cta aag ctc att ggc ttc aga ggt ttt cat ttt cca aat tgg atg Ser Leu Lys Leu Ile Gly Phe Arg Gly Phe His Phe Pro Asn Trp Met 725 730 735 740	2439
aac gct tcg gtt ttg aaa aat gtc gtc tct att gaa att gaa tgt gaa Asn Ala Ser Val Leu Lys Asn Val Val Ser Ile Glu Ile Glu Cys Glu 745 750 755	2487
aac tgc tgg cgt tta cca cca ttt gga gag ctg cct tgt cta gaa agt Asn Cys Trp Arg Leu Pro Pro Phe Gly Glu Leu Pro Cys Leu Glu Ser 760 765 770	2535
cta aag tta tac aac gga tct gcg gag gtg gag tat att gaa gag gat Leu Lys Leu Tyr Asn Gly Ser Ala Glu Val Glu Tyr Ile Glu Glu Asp 775 780 785	2583
gat ggt cat tcc aca tta aag ttc cca tac ttg aaa cga ctt gct att Asp Gly His Ser Thr Leu Lys Phe Pro Tyr Leu Lys Arg Leu Ala Ile 790 795 800	2631
gaa aga ttt cca aat ctg aaa gga ctg ctg aga agt gaa gga gaa gag Glu Arg Phe Pro Asn Leu Lys Gly Leu Leu Arg Ser Glu Gly Glu Glu 805 810 815 820	2679
aaa ttc tcc atg ctt gaa gaa atg gaa att tgg cat tgc cct atg ttt Lys Phe Ser Met Leu Glu Glu Met Glu Ile Trp His Cys Pro Met Phe 825 830 835	2727
gtt ttt cca gca ttc tct gtc acg aaa ttg gat gtc tgg ggg gaa Val Phe Pro Ala Phe Ser Ser Val Thr Lys Leu Asp Val Trp Gly Glu 840 845 850	2775
ata gat gca gca agt ctt agc tcc ata tct aag ctt acc act ctt acg Ile Asp Ala Ala Ser Leu Ser Ser Ile Ser Lys Leu Thr Thr Leu Thr 855 860 865	2823
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atg ttc aaa cgc ctt gta aat ctt gag tcc ttg agc att ata tac ttc Met Phe Lys Arg Leu Val Asn Leu Glu Ser Leu Ser Ile Ile Tyr Phe 885 890 895 900	2919
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Lys Lys Leu Arg Glu Leu Pro Ser Ser Leu Ala Ser Leu Asn Ala Leu			
905	910	915	
aag tgt cta aaa att cat tat tgt tac gca cta gag agt ctc ccc gaa			3015
Lys Cys Leu Lys Ile His Tyr Cys Tyr Ala Leu Glu Ser Leu Pro Glu			
920	925	930	
caa ggg atg gaa ggg tta act tca ctc acc gac tta tat gtt caa aac			3063
Gln Gly Met Glu Gly Leu Thr Ser Leu Thr Asp Leu Tyr Val Gln Asn			
935	940	945	
tgt gag atg cta aaa tgt tta cct gag gga ttg cag cac cta aga gcc			3111
Cys Glu Met Leu Lys Cys Leu Pro Glu Gly Leu Gln His Leu Arg Ala			
950	955	960	
ctc act agt tta caa att tat ggc tgt cca gca ttg aaa aag cgg tgt			3159
Leu Thr Ser Leu Gln Ile Tyr Gly Cys Pro Ala Leu Lys Lys Arg Cys			
965	970	975	980
gcg aag ggg ata gga gag gac tgg cac aaa att gct cac att cct aat			3207
Ala Lys Gly Ile Gly Glu Asp Trp His Lys Ile Ala His Ile Pro Asn			
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Lys Leu Ser Ser Thr Phe Ser Thr Ile Gln Leu Val Leu Glu Asp Ala			
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Ser Glu Lys Gln Leu Lys Asp Lys Ala Ile Glu Asn Trp Leu Gln Lys			
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Leu Asn Phe Ala Ala Tyr Glu Val Asp Asp Ile Leu Asp Glu Cys Lys			
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Asn Glu Ala Ala Arg Phe Asn Gln Ser Leu Leu Gly Tyr Ile His Pro			
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Lys Ile Ile Ile Phe Arg Tyr Lys Leu Gly Lys Arg Met Lys Arg Met			
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115 120 125

Arg Ala Lys Ile Val Glu Lys Gln Ala Ser Lys Arg Glu Thr Gly Ala  
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His Leu Lys Leu Cys Leu Ala Lys Tyr Leu Leu Ile Ala Thr Gly Phe  
145 150 155 160

Val Leu Ala Glu Pro Lys Val Tyr Gly Arg Asp Lys Glu Lys Asp Glu  
165 170 175

Met Val Lys Ile Leu Ile Asn Ser Val Ser Asn Ala Gln Glu Leu Leu  
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Val Leu Pro Ile Leu Gly Met Gly Gly Leu Gly Lys Thr Thr Leu Ala  
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Gln Met Ile Phe Asn Asp Gln Ser Val Thr Ala His Phe Asn Leu Lys  
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Ile Trp Val Cys Val Ser Asp Asp Phe Asp Glu Lys Arg Leu Ile Lys  
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Ala Ile Val Glu Ser Ile Glu Arg Arg Pro Leu Gly Asp Ile Asp Leu  
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Ala Pro Leu Gln Lys Lys Leu Gln Glu Leu Leu Asn Gly Lys Arg Tyr  
260 265 270

Phe Leu Val Leu Asp Asp Val Trp Asn Glu Asp Gln Glu Lys Trp Ala  
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Lys Ile Lys Ala Val Leu Lys Val Gly Ala Gln Gly Ser Ser Ile Leu  
290 295 300

Ala Thr Thr Arg Leu Glu Arg Val Gly Ser Ile Met Gly Thr Trp Gln  
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Pro Tyr Gln Leu Ser Ile Leu Ser Pro Glu Tyr Cys Trp Leu Leu Phe  
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Lys Gln Arg Ala Phe Gly His Gln Thr Glu Thr Asn Pro Ala Leu Val  
340 345 350

Gly Ile Gly Lys Glu Ile Val Lys Lys Cys Gly Gly Val Pro Leu Ala  
355 360 365

Ala Lys Thr Leu Gly Gly Leu Leu Arg Phe Lys Arg Glu Glu Ser Glu  
370 375 380

Trp Glu His Val Lys Asp Ser Glu Ile Trp Asn Leu Pro Gln Asp Glu  
385 390 395 400

Asn Ser Val Leu Pro Ser Leu Arg Leu Ser Tyr His His Leu Pro Leu  
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Asn Leu Arg Gln Cys Phe Ala Tyr Cys Ala Val Phe Pro Lys Asp Thr  
420 425 430

Lys Ile Glu Lys Glu Tyr Leu Ile Thr Leu Trp Met Ala His Gly Phe  
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Leu Leu Ser Lys Glu Asn Ser Glu Leu Glu Asp Val Gly Asn Glu Val  
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Trp Lys Glu Leu Tyr Leu Arg Ser Phe Phe Gln Glu Val Glu Glu Tyr  
465 470 475 480

Lys Phe Gly Asn Thr Tyr Phe Lys Met His Asp Leu Ile His Asp Leu  
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Ala Thr Ser Leu Phe Ser Thr Asn Thr Arg Ser Ser Lys Ile Arg Gln  
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Ile Arg Val Ala Gln Lys Asn Thr Ile Pro Ile Gly Phe Ala Glu Val  
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Val Pro Ser Tyr Ser Pro Leu Ile Phe Lys Arg Phe Val Ser Leu Arg  
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Val Leu Asp Met Lys Phe Ser Lys Phe Asp Gln Leu Ser Ser Ser Ile  
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Gly Asp Leu Ile His Leu Arg Leu Leu Asn Leu Arg Gly Ser Ser Ile  
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Arg Ser Leu Pro Lys Arg Leu Cys Lys Leu Gln Asn Leu Gln Thr Leu  
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Asp Ile Ser Cys Cys Phe Ser Leu Ser Tyr Ile Pro Lys Gln Ile Ser  
595 600 605

Lys Leu Ser Ser Leu Arg Asn Leu Val Phe Ser Gly Cys Gln Ile Thr  
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Ser Met Pro Pro Arg Ile Gly Ser Leu Thr Cys Leu Lys Thr Leu Asp  
625 630 635 640

Tyr Phe Ile Val Gly Glu Arg Lys Gly Tyr Gln Leu Gly Glu Leu Arg  
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Asn Leu Ser Leu His Gly Ser Leu Ser Ile Ser His Leu Glu Arg Val  
660 665 670

Lys Ser Glu Thr Asp Ala Lys Glu Ala Asn Leu Ser Thr Lys Gln Lys  
675 680 685

Leu Tyr Asn Leu Cys Met Ser Trp Asp Ile Arg Pro Tyr Gly Tyr Glu  
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Ser Glu Asn Asn Leu Asp Glu Lys Val Leu Glu Ala Leu Arg Pro His  
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Ser Asn Leu Lys Ser Leu Lys Leu Ile Gly Phe Arg Gly Phe His Phe  
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Pro Asn Trp Met Asn Ala Ser Val Leu Lys Asn Val Val Ser Ile Glu  
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Ile Glu Cys Glu Asn Cys Trp Arg Leu Pro Pro Phe Gly Glu Leu Pro  
755 760 765

Cys Leu Glu Ser Leu Lys Leu Tyr Asn Gly Ser Ala Glu Val Glu Tyr  
770 775 780

Ile Glu Glu Asp Asp Gly His Ser Thr Leu Lys Phe Pro Tyr Leu Lys  
785 790 795 800

Arg Leu Ala Ile Glu Arg Phe Pro Asn Leu Lys Gly Leu Leu Arg Ser  
805 810 815

Glu Gly Glu Glu Lys Phe Ser Met Leu Glu Glu Met Glu Ile Trp His  
820 825 830

Cys Pro Met Phe Val Phe Pro Ala Phe Ser Ser Val Thr Lys Leu Asp

835

840

845

Val Trp Gly Glu Ile Asp Ala Ala Ser Leu Ser Ser Ile Ser Lys Leu  
850 855 860

Thr Thr Leu Thr Ser Leu Ser Ile Asp His Asn Phe Glu Ala Thr Thr  
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Leu Pro Glu Glu Met Phe Lys Arg Leu Val Asn Leu Glu Ser Leu Ser  
885 890 895

Ile Ile Tyr Phe Lys Lys Leu Arg Glu Leu Pro Ser Ser Leu Ala Ser  
900 905 910

Leu Asn Ala Leu Lys Cys Leu Lys Ile His Tyr Cys Tyr Ala Leu Glu  
915 920 925

Ser Leu Pro Glu Gln Gly Met Glu Gly Leu Thr Ser Leu Thr Asp Leu  
930 935 940

Tyr Val Gln Asn Cys Glu Met Leu Lys Cys Leu Pro Glu Gly Leu Gln  
945 950 955 960

His Leu Arg Ala Leu Thr Ser Leu Gln Ile Tyr Gly Cys Pro Ala Leu  
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His Ile Pro Asn Val Asp Ile Cys  
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taaatacata tatctggtat ataattaatt tttaaagtgc atgaagtatg tatcaaatac 180

acatatggaa aaaattaact attcataatt taaaaatag aaaagataca tctagtgaaa 240

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gattttgatt tatgtataat ttccaaatga aggtttatctacttcaga aataacaata 360

tacttttatac agaacattca acaaagcaac aaccaacttag agtaaaaat acacatttt 420

ctcttagacat acaaaaattga gaaaagaatc tcaaaattttt gagaacaaaa tctgaatttc 480

tagaagaaaa aaataattat gcactttgct attgctcgaa aaataaatga aagaaatttag 540

actttttaa aagatgttag actagatata ctcaaaagct attaaaggag taatatttt 600

cttacattaa gtatTTtagt tacagtcctg taattaaaga cacatttttag attgtatcta 660

aactttaaatg tatctagaat acatatattt gaatgcata tatacatgttac tccgacacac 720

caattctcat aaaaaacgta atatcctaaa ctaatttatac cttcaagtca acttaagccc 780

aatatacatt ttcattctcta aaggcccaag tggcacaaaa tgtcaggccc aattacgaag 840

aaaaggcctt gtaaaaccct aataaagtgg cactggcaga gcttacactc tcattccatc 900

aacaaagaaaa ccctaaaagc cgccgcgccttgcatt tcaaaaaata tagattcatt gcgtactcac 960

cggggatcc ccccaacatc ttacttcatt tcaaaaaata tagattcatt gcgtactcac 1020

aataactct atg gct gaa gct ttc ctt caa gtt ctg tta gac aat ctg act 1070  
Met Ala Glu Ala Phe Leu Gln Val Leu Leu Asp Asn Leu Thr

1

5

10

tgt ttc atc caa ggg gaa ctt gga ttg att ctt ggt ttt aag gat gag 1118  
Cys Phe Ile Gln Gly Glu Leu Gly Leu Ile Leu Gly Phe Lys Asp Glu

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20

25

30

ttc gaa aag ctt caa agc acg ttt act aca atc caa gct gtg cta gaa 1166  
Phe Glu Lys Leu Gln Ser Thr Phe Thr Ile Gln Ala Val Leu Glu

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gat gct cag aag aag caa ttg aag gac aag gca ata gaa aat tgg ttg 1214  
Asp Ala Gln Lys Lys Gln Leu Lys Asp Lys Ala Ile Glu Asn Trp Leu

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cag aaa ctc aat gct gct gca tat gag gct gat gac atc ttg gac gaa Gln Lys Leu Asn Ala Ala Ala Tyr Glu Ala Asp Asp Ile Leu Asp Glu 65 70 75	1262
tgt aaa act gag gca cca att aga cag aag aag aac aaa tat ggg tgt Cys Lys Thr Glu Ala Pro Ile Arg Gln Lys Lys Asn Lys Tyr Gly Cys 80 85 90	1310
tat cat cca aac gtt atc act ttt cgt cac aag att ggg aaa agg atg Tyr His Pro Asn Val Ile Thr Phe Arg His Lys Ile Gly Lys Arg Met 95 100 105 110	1358
aaa aag att atg gag aaa cta gat gta att gca gcg gaa cga att aag Lys Lys Ile Met Glu Lys Leu Asp Val Ile Ala Ala Glu Arg Ile Lys 115 120 125	1406
ttt cat ttg gat gaa agg act ata gag aga caa gtt gct aca cgc caa Phe His Leu Asp Glu Arg Thr Ile Glu Arg Gln Val Ala Thr Arg Gln 130 135 140	1454
aca gg tgctcatctt agatattttt ctgaaaaac agctttatat catcaaattc Thr Gly	1509
atgtgtgttt tggaaattcg tctaattctaa atgttcgtct caagtctaag tagataagt gatccagctt tggattttatt aatctatttag ctaaatctgt ttagtgaagt ttttaacata tataacctca gataaatcca tagcttactc ataggattag gataggcccc caagtctaaa tgacaggata aagccagagt tgtttagct cttataaatt aacaatgata ataatgtcaa ttcaaaaaag tgcatttttt taatttgaaa tatttctgct gcttcataag cttatcatgg tcttttact gtgcaaaatt ctactttgta ttttgctga ctcctaccga gcttggccca gg t ttt gtt ttg aat gaa cca caa gtt tat gga aga gac aaa gaa aag Phe Val Leu Asn Glu Pro Gln Val Tyr Gly Arg Asp Lys Glu Lys 145 150 155	1569 1629 1689 1749 1809 1869 1917
gac gag ata gtg aaa atc ctg ata aac aat gtt agc aat gcc caa aca Asp Glu Ile Val Lys Ile Leu Ile Asn Asn Val Ser Asn Ala Gln Thr 160 165 170 175	1965
ctt cca gtc ctc cca ata ctt ggt atg ggg gga cta gga aag acg act Leu Pro Val Leu Pro Ile Leu Gly Met Gly Gly Leu Gly Lys Thr Thr 180 185 190	2013
ctt gcc caa atg gtc ttc aat gat cag aga gta att gag cat ttc cat Leu Ala Gln Met Val Phe Asn Asp Gln Arg Val Ile Glu His Phe His 195 200 205	2061
ccc aaa ata tgg att tgt gtc tcg gaa gat ttt aat gag aag agg ttg Pro Lys Ile Trp Ile Cys Val Ser Glu Asp Phe Asn Glu Lys Arg Leu 210 215 220	2109
ata aag gaa att gta gaa tct att gaa gaa aag tca ctt ggt ggc atg Ile Lys Glu Ile Val Glu Ser Ile Glu Glu Lys Ser Leu Gly Gly Met 225 230 235	2157
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Asp Leu Ala Pro Leu Gln Lys Lys Leu Arg Asp Leu Leu Asn Gly Lys			
240	245	250	255
aaa tat ttg ctc gtc tta gat gat gtt tgg aat gaa gat caa gat aag			2253
Lys Tyr Leu Leu Val Leu Asp Asp Val Trp Asn Glu Asp Gln Asp Lys			
260	265	270	
tgg gct aag tta aga caa gtc ttg aag gtt gga gca agt ggc gct tct			2301
Trp Ala Lys Leu Arg Gln Val Leu Lys Val Gly Ala Ser Gly Ala Ser			
275	280	285	
gtt cta acc act act cgt ctt gaa aag gtt gga tca att atg gga aca			2349
Val Leu Thr Thr Arg Leu Glu Lys Val Gly Ser Ile Met Gly Thr			
290	295	300	
ttg caa cca tat gaa ttg tca aat ttg tct caa gaa gat tgt tgg ttg			2397
Leu Gln Pro Tyr Glu Leu Ser Asn Leu Ser Gln Glu Asp Cys Trp Leu			
305	310	315	
ttg ttc atg caa cgt gca ttt ggg cac caa gaa gaa ata aat ctt aat			2445
Leu Phe Met Gln Arg Ala Phe Gly His Gln Glu Glu Ile Asn Leu Asn			
320	325	330	335
ctt gtg gct atc gga aag gag att gtg aaa aaa tgt ggt ggt gtg cct			2493
Leu Val Ala Ile Gly Lys Glu Ile Val Lys Lys Cys Gly Gly Val Pro			
340	345	350	
cta gca gct aaa act ctt gga ggt att ttg cgc ttt aag aga gaa gaa			2541
Leu Ala Ala Lys Thr Leu Gly Gly Ile Leu Arg Phe Lys Arg Glu Glu			
355	360	365	
aga cag tgg gaa cat gtg aga gat agt gag att tgg aaa ttg cct caa			2589
Arg Gln Trp Glu His Val Arg Asp Ser Glu Ile Trp Lys Leu Pro Gln			
370	375	380	
gaa gaa agt tct att ctg cct gcc ctg aga ctt agt tac cat cac ctt			2637
Glu Glu Ser Ser Ile Leu Pro Ala Leu Arg Leu Ser Tyr His His Leu			
385	390	395	
cca ctt gat ttg aga caa tgc ttt aca tat tgt gca gta ttc cca aag			2685
Pro Leu Asp Leu Arg Gln Cys Phe Thr Tyr Cys Ala Val Phe Pro Lys			
400	405	410	415
gat acc gaa atg gaa aag gga aat cta atc tct ctc tgg atg gca cat			2733
Asp Thr Glu Met Glu Lys Gly Asn Leu Ile Ser Leu Trp Met Ala His			
420	425	430	
ggt ttt att tta tcg aaa gga aac ttg gag cta gag aat gta ggt aat			2781
Gly Phe Ile Leu Ser Lys Gly Asn Leu Glu Leu Glu Asn Val Gly Asn			
435	440	445	
gaa gta tgg aat gaa tta tac ttg agg tct ttc ttc caa gag att gaa			2829
Glu Val Trp Asn Glu Leu Tyr Leu Arg Ser Phe Phe Gln Glu Ile Glu			
450	455	460	
gtt aaa tct ggt caa act tat ttc aag atg cat gat ctc att cat gat			2877
Val Lys Ser Gly Gln Thr Tyr Phe Lys Met His Asp Leu Ile His Asp			
465	470	475	
ctg gca aca tct cta ttt tcg gca agc aca tca agc agc aat atc cga			2925
Leu Ala Thr Ser Leu Phe Ser Ala Ser Thr Ser Ser Asn Ile Arg			

480	485	490	495	
gaa ata att gta gaa aat tac ata cat atg atg tcc att ggt ttc act Glu Ile Ile Val Glu Asn Tyr Ile His Met Met Ser Ile Gly Phe Thr 500		505		2973
aaa gtg gta tct tac tct ctt tcc cac ttg cag aag ttt gtc tcg Lys Val Val Ser Ser Tyr Ser Leu Ser His Leu Gln Lys Phe Val Ser 515	520		525	3021
ttg agg gtg ctt aat cta agt gac ata aaa ctt aag cag tta ccg tct Leu Arg Val Leu Asn Leu Ser Asp Ile Lys Leu Lys Gln Leu Pro Ser 530	535	540		3069
tcc att gga gat cta gta cat tta aga tac cta aac ttg tct ggc aat Ser Ile Gly Asp Leu Val His Leu Arg Tyr Leu Asn Leu Ser Gly Asn 545	550	555		3117
act agt att cgt agt ctt cca aac cag tta tgc aag ctt caa aat ctg Thr Ser Ile Arg Ser Leu Pro Asn Gln Leu Cys Lys Leu Gln Asn Leu 560	565	570	575	3165
cag act ctt gat cta cat ggc tgt cat tca ctt tgt ttg cca aaa Gln Thr Leu Asp Leu His Gly Cys His Ser Leu Cys Cys Leu Pro Lys 580	585		590	3213
gaa aca agc aaa ctt ggt agt ctt cga aat ctt tta ctt gat ggt tgc Glu Thr Ser Lys Leu Gly Ser Leu Arg Asn Leu Leu Asp Gly Cys 595	600		605	3261
tat gga ttg act tgt atg cca cca agg ata gga tct ttg aca tgc ctt Tyr Gly Leu Thr Cys Met Pro Pro Arg Ile Gly Ser Leu Thr Cys Leu 610	615	620		3309
aag act cta agt aga ttt gtg gtg gga att cag aag aaa agt tgt caa Lys Thr Leu Ser Arg Phe Val Val Gly Ile Gln Lys Lys Ser Cys Gln 625	630	635		3357
ctt ggt gaa tta cga aac ctg aat ctc tat ggc tca att gaa atc acg Leu Gly Glu Leu Arg Asn Leu Asn Leu Tyr Gly Ser Ile Glu Ile Thr 640	645	650	655	3405
cat ctt gag aga gtg aag aat gat atg gat gca aaa gaa gcc aat tta His Leu Glu Arg Val Lys Asn Asp Met Asp Ala Lys Glu Ala Asn Leu 660	665		670	3453
tct gca aaa gaa aat ctg cat tct tta agc atg aaa tgg gat gac gat Ser Ala Lys Glu Asn Leu His Ser Leu Ser Met Lys Trp Asp Asp Asp 675	680	685		3501
gaa cgt cca cgt ata tat gaa tca gaa aaa gtt gaa gtg ctt gaa gct Glu Arg Pro Arg Ile Tyr Glu Ser Glu Lys Val Glu Val Leu Glu Ala 690	695	700		3549
ctc aaa cca cac tcc aat ctg act tgt tta aca atc agg ggc ttc aga Leu Lys Pro His Ser Asn Leu Thr Cys Leu Thr Ile Arg Gly Phe Arg 705	710	715		3597
gga atc cgt ctc cca gac tgg atg aat cac tca gtt ttg aaa aat gtt Gly Ile Arg Leu Pro Asp Trp Met Asn His Ser Val Leu Lys Asn Val 720	725	730	735	3645

gtc tct att gaa atc atc agt tgc aaa aac tgc tca tgc tta cca ccc Val Ser Ile Glu Ile Ile Ser Cys Lys Asn Cys Ser Cys Leu Pro Pro 740 745 750	3693
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tgt tat gca cta gag agt ctc ccc gag gaa ggt gtg aaa ggt tta att Cys Tyr Ala Leu Glu Ser Leu Pro Glu Glu Gly Val Lys Gly Leu Ile 915 920 925	4221
tca ctc aca cag tta tcc ata aca tac tgt gaa atg ctacaa tgt tta Ser Leu Thr Gln Leu Ser Ile Thr Tyr Cys Glu Met Leu Gln Cys Leu 930 935 940	4269
ccg gag gga ttg cag cac cta aca gcc ctc aca aat tta tca gtt gag Pro Glu Gly Leu Gln His Leu Thr Ala Leu Thr Asn Leu Ser Val Glu 945 950 955	4317
ttt tgt cca aca ctg gcc aag cggttgt gag aag gga ata gga gaa gac Phe Cys Pro Thr Leu Ala Lys Arg Cys Glu Lys Gly Ile Gly Glu Asp 960 965 970 975	4365

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980	985
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<400> 10

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Ile Gln Gly Glu Leu Gly Leu Ile Leu Gly Phe Lys Asp Glu Phe Glu		
20	25	30

Lys Leu Gln Ser Thr Phe Thr Thr Ile Gln Ala Val Leu Glu Asp Ala		
35	40	45

Gln Lys Lys Gln Leu Lys Asp Lys Ala Ile Glu Asn Trp Leu Gln Lys		
50	55	60

Leu Asn Ala Ala Ala Tyr Glu Ala Asp Asp Ile Leu Asp Glu Cys Lys			
65	70	75	80

Thr Glu Ala Pro Ile Arg Gln Lys Lys Asn Lys Tyr Gly Cys Tyr His		
85	90	95

Pro Asn Val Ile Thr Phe Arg His Lys Ile Gly Lys Arg Met Lys Lys		
100	105	110

Ile Met Glu Lys Leu Asp Val Ile Ala Ala Glu Arg Ile Lys Phe His  
115 120 125

Leu Asp Glu Arg Thr Ile Glu Arg Gln Val Ala Thr Arg Gln Thr Gly  
130 135 140

Phe Val Leu Asn Glu Pro Gln Val Tyr Gly Arg Asp Lys Glu Lys Asp  
145 150 155 160

Glu Ile Val Lys Ile Leu Ile Asn Asn Val Ser Asn Ala Gln Thr Leu  
165 170 175

Pro Val Leu Pro Ile Leu Gly Met Gly Gly Leu Gly Lys Thr Thr Leu  
180 185 190

Ala Gln Met Val Phe Asn Asp Gln Arg Val Ile Glu His Phe His Pro  
195 200 205

Lys Ile Trp Ile Cys Val Ser Glu Asp Phe Asn Glu Lys Arg Leu Ile  
210 215 220

Lys Glu Ile Val Glu Ser Ile Glu Glu Lys Ser Leu Gly Gly Met Asp  
225 230 235 240

Leu Ala Pro Leu Gln Lys Lys Leu Arg Asp Leu Leu Asn Gly Lys Lys  
245 250 255

Tyr Leu Leu Val Leu Asp Asp Val Trp Asn Glu Asp Gln Asp Lys Trp  
260 265 270

Ala Lys Leu Arg Gln Val Leu Lys Val Gly Ala Ser Gly Ala Ser Val  
275 280 285

Leu Thr Thr Thr Arg Leu Glu Lys Val Gly Ser Ile Met Gly Thr Leu  
290 295 300

Gln Pro Tyr Glu Leu Ser Asn Leu Ser Gln Glu Asp Cys Trp Leu Leu  
305 310 315 320

Phe Met Gln Arg Ala Phe Gly His Gln Glu Glu Ile Asn Leu Asn Leu  
325 330 335

Val Ala Ile Gly Lys Glu Ile Val Lys Lys Cys Gly Gly Val Pro Leu  
340 345 350

Ala Ala Lys Thr Leu Gly Gly Ile Leu Arg Phe Lys Arg Glu Glu Arg  
355 360 365

Gln Trp Glu His Val Arg Asp Ser Glu Ile Trp Lys Leu Pro Gln Glu  
370 375 380

Glu Ser Ser Ile Leu Pro Ala Leu Arg Leu Ser Tyr His His Leu Pro  
385 390 395 400

Leu Asp Leu Arg Gln Cys Phe Thr Tyr Cys Ala Val Phe Pro Lys Asp  
405 410 415

Thr Glu Met Glu Lys Gly Asn Leu Ile Ser Leu Trp Met Ala His Gly  
420 425 430

Phe Ile Leu Ser Lys Gly Asn Leu Glu Leu Glu Asn Val Gly Asn Glu  
435 440 445

Val Trp Asn Glu Leu Tyr Leu Arg Ser Phe Phe Gln Glu Ile Glu Val  
450 455 460

Lys Ser Gly Gln Thr Tyr Phe Lys Met His Asp Leu Ile His Asp Leu  
465 470 475 480

Ala Thr Ser Leu Phe Ser Ala Ser Thr Ser Ser Ser Asn Ile Arg Glu  
485 490 495

Ile Ile Val Glu Asn Tyr Ile His Met Met Ser Ile Gly Phe Thr Lys  
500 505 510

Val Val Ser Ser Tyr Ser Leu Ser His Leu Gln Lys Phe Val Ser Leu  
515 520 525

Arg Val Leu Asn Leu Ser Asp Ile Lys Leu Lys Gln Leu Pro Ser Ser  
530 535 540

Ile Gly Asp Leu Val His Leu Arg Tyr Leu Asn Leu Ser Gly Asn Thr  
545 550 555 560

Ser Ile Arg Ser Leu Pro Asn Gln Leu Cys Lys Leu Gln Asn Leu Gln  
565 570 575

Thr Leu Asp Leu His Gly Cys His Ser Leu Cys Cys Leu Pro Lys Glu  
580 585 590

Thr Ser Lys Leu Gly Ser Leu Arg Asn Leu Leu Asp Gly Cys Tyr

595

600

605

Gly Leu Thr Cys Met Pro Pro Arg Ile Gly Ser Leu Thr Cys Leu Lys  
610 615 620

Thr Leu Ser Arg Phe Val Val Gly Ile Gln Lys Lys Ser Cys Gln Leu  
625 630 635 640

Gly Glu Leu Arg Asn Leu Asn Leu Tyr Gly Ser Ile Glu Ile Thr His  
645 650 655

Leu Glu Arg Val Lys Asn Asp Met Asp Ala Lys Glu Ala Asn Leu Ser  
660 665 670

Ala Lys Glu Asn Leu His Ser Leu Ser Met Lys Trp Asp Asp Asp Glu  
675 680 685

Arg Pro Arg Ile Tyr Glu Ser Glu Lys Val Glu Val Leu Glu Ala Leu  
690 695 700

Lys Pro His Ser Asn Leu Thr Cys Leu Thr Ile Arg Gly Phe Arg Gly  
705 710 715 720

Ile Arg Leu Pro Asp Trp Met Asn His Ser Val Leu Lys Asn Val Val  
725 730 735

Ser Ile Glu Ile Ile Ser Cys Lys Asn Cys Ser Cys Leu Pro Pro Phe  
740 745 750

Gly Glu Leu Pro Cys Leu Lys Ser Leu Glu Leu Trp Arg Gly Ser Ala  
755 760 765

Glu Val Glu Tyr Val Asp Ser Gly Phe Pro Thr Arg Arg Arg Phe Pro  
770 775 780

Ser Leu Arg Lys Leu Asn Ile Arg Glu Phe Asp Asn Leu Lys Gly Leu  
785 790 795 800

Leu Lys Glu Gly Glu Glu Gln Cys Pro Val Leu Glu Glu Ile Glu  
805 810 815

Ile Lys Cys Cys Pro Met Phe Val Ile Pro Thr Leu Ser Ser Val Lys  
820 825 830

Lys Leu Val Val Ser Gly Asp Lys Ser Asp Ala Ile Gly Phe Ser Ser  
835 840 845

Ile Ser Asn Leu Met Ala Leu Thr Ser Leu Gln Ile Arg Tyr Asn Lys  
850                            855                            860

Glu Asp Ala Ser Leu Pro Glu Glu Met Phe Lys Ser Leu Ala Asn Leu  
865                            870                            875                            880

Lys Tyr Leu Asn Ile Ser Phe Tyr Phe Asn Leu Lys Glu Leu Pro Thr  
885                            890                            895

Ser Leu Ala Ser Leu Asn Ala Leu Lys His Leu Glu Ile His Ser Cys  
900                            905                            910

Tyr Ala Leu Glu Ser Leu Pro Glu Glu Gly Val Lys Gly Leu Ile Ser  
915                            920                            925

Leu Thr Gln Leu Ser Ile Thr Tyr Cys Glu Met Leu Gln Cys Leu Pro  
930                            935                            940

Glu Gly Leu Gln His Leu Thr Ala Leu Thr Asn Leu Ser Val Glu Phe  
945                            950                            955                            960

Cys Pro Thr Leu Ala Lys Arg Cys Glu Lys Gly Ile Gly Glu Asp Trp  
965                            970                            975

Tyr Lys Ile Ala His Ile Pro Arg Val Phe Ile Tyr  
980                            985